## Remarks

Entry of the amendments, reconsideration of the application, as amended, and allowance of all pending claims are respectfully requested. Claims 1-71 remain pending.

In the Office Action dated February 27, 2003, the specification is objected to because of missing serial numbers and filing dates. In the above amendment, applicants have provided the requested information, and therefore, respectfully request withdrawal of the disclosure objection.

Further, claims 1-12, 17-35, 40-60 and 65-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimsrud et al. (U.S. Patent No. 6,253,296) in view of Smith (U.S. Patent No. 5,394,531). Applicants respectfully, but most strenuously, traverse this rejection for the reasons herein.

In one aspect, applicants' invention is directed to the allocation of space by a plurality of file systems across one or more storage devices, such that the space on a device is allocated, and thus, consumed in proportion to some weight assigned to that device. For example, in independent claim 1, applicants claim a method of managing the allocation of space on storage devices of a computing environment. The method includes, for instance, obtaining one or more weights for one or more storage devices of the computing environment; and allocating space on at least one storage device of the one or more storage devices in proportion to at least one weight obtained for the at least one storage device, wherein the allocating is performed by a plurality of file systems of the computing environment. Thus, in applicants' claimed invention, space is allocated by a plurality of file systems. Further, space is allocated on at least one storage device in proportion to at least one weight associated with the at least one device. These aspects are very different from the teachings of Grimsrud and Smith, either alone or in combination.

For instance, there is no teaching or suggestion in Grimsrud of performing allocation by a plurality of file systems, as claimed by applicants. Applicants explicitly claim that the allocating of space on one or more storage devices is performed by a plurality of file systems of the computing environment. There is no teaching or suggestion in Grimsrud of a plurality

of file systems. Further, there is no teaching or suggestion of allocating space on one or more storage devices by a plurality of file systems. The only mention of a file system in Grimsrud is of a single file system (col. 10, lines 44-45) or single file subsystem (col. 9, line 23). There is no teaching or suggestion of performing allocation by a plurality of file systems, as claimed by applicants. Thus, Grimsrud does not teach or suggest applicants' claimed invention.

Further, Grimsrud is not concerned with the problems that arise when there are a plurality of file systems performing allocation, as evidenced by the absence of any mention of a plurality of file systems. Since Grimsrud is concerned with finding alternate disk block allocations for current allocation and is not concerned with, for instance, initial allocations or allocations by a plurality of file systems, Grimsrud is directed to a different problem than that solved by applicants' invention. Again, in one aspect, applicants' invention is directed to managing allocation when there are a plurality of file systems performing that allocation. Methodologies that can be used for a single file system are typically not available when a plurality of file systems are involved. Applicants address the allocation by a plurality of file systems, unlike Grimsrud.

As a further example, there is no teaching or suggestion in Grimsrud of applicants' claimed element of obtaining one or more weights for one or more storage devices of a computing environment. While weights are mentioned in Grimsrud, those weights are associated with transition arcs used to represent the probability of a transition being made and are not weights associated with storage devices, as claimed by applicants. In Grimsrud, it is explicitly stated that a weight (probability) is computed based on the number of occurrences of the transition observed, relative to other transitions from the node. (See, e.g., col. 9, lines 25-32.) There is no description at all in Grimsrud of obtaining weights associated with storage devices, as claimed by applicants.

Further, since there is no teaching or suggestion in Grimsrud of weights of one or more storage devices, it follows that Grimsrud also fails to teach or suggest allocating space on a storage device in proportion to at least one weight obtained for that storage device. This is missing from Grimsrud.

Based on the foregoing, applicants respectfully submit that Grimsrud does not teach or suggest one or more aspects of applicants' claimed invention. Moreover, applicants respectfully submit that Smith does not overcome the deficiencies of Grimsrud. In particular, Smith also fails to teach or suggest one or more aspects of applicants' claimed invention, as described below.

Smith describes a technique for dynamically partitioning an in-memory cache to provide prioritized access to the cached data from different data sets. The data previously stored on an external device, such as disk, is classified into data sets and assigned priorities. The space in the cache is partitioned between the various data sets such that more of the cache is used for data from the higher priority data sets than is used for data from the lower priority data sets. Smith, like Grimsrud, fails to teach or suggest one or more aspects of applicants' claimed invention.

For example, Smith fails to teach or suggest performing allocation by a plurality of file systems, as claimed by applicants. Applicants respectfully submit that Smith does not even mention a file system, much less address problems associated with performing allocation by a plurality of file systems. Thus, applicants respectfully submit that Smith does not teach or suggest this aspect of applicants' claimed invention.

As a further example, Smith fails to teach or suggest one or more weights of one or more storage devices, as claimed by applicants. The "weight" described in Smith is used to express priorities to existing data and are not weights associated to the devices themselves, as claimed by applicants. That is, in Smith, it is the classes that have weights associated with them and not the storage devices.

Further, as another example, Smith fails to teach or suggest applicants' claimed element of allocating space on a storage device in proportion to a weight obtained for that storage device. First, Smith is not allocating space on a storage device, but instead, is managing an in-memory cache. Second, the managing of the in-memory cache is based on class priorities and not weights assigned to storage devices. In Smith, it would not make sense to assign a weight to the cache since there is only one cache. The priorities are instead

assigned to the classes of data. Thus, there is no teaching or suggestion in Smith of allocating space on a storage device based on a weight of that storage device.

Moreover, the problem addressed by Smith of managing an in-memory cache of data read from disks is unrelated to the problem addressed by applicants of assigning data blocks to disks. For this reason, applicants respectfully submit that one would not look to Smith for a teaching of one or more aspects of applicants' claimed invention. Further, one would not combine Smith with Grimsrud since they are focused on different problems.

Based on the foregoing, applicants respectfully submit that Smith does not overcome the deficiencies of Grimsrud. Since both Grimsrud and Smith fail to teach or suggest one or more aspects of applicants' claimed invention, applicants respectfully submit that their invention is not obvious over the teachings or suggestions of Grimsrud and Smith. Thus, applicants respectfully request an indication of allowability for independent claim 1.

The dependent claims are patentable for the same reasons as the independent claim, as well as for their own additional features. For example, in dependent claim 2, applicants explicitly claim that each of the plurality of file systems is located on separate nodes of the computing environment. In addition to not having a plurality of file systems as described above, neither Grimsrud nor Smith teaches or suggests a plurality of nodes, as claimed by applicants.

For example, while Grimsrud uses the term "node", the use of that term in Grimsrud is very different from the use of that term by applicants. In Grimsrud, the node is a node in a model that represents an accessed file cluster (Col. 9, lines 23-25). In contrast, in applicants' claimed invention, a node is a computing entity, such as a processor (see e.g., FIGs. 1 & 2), used in processing. There is no teaching or suggestion in Grimsrud of a plurality of file systems located on a plurality of nodes, as claimed by applicants. Further, Smith does not overcome the deficiencies of Grimsrud. In Smith, there is only one cache on one processor. There is no teaching or suggestion of a plurality of nodes or of a plurality of file systems located on a plurality of nodes, as claimed by applicants. Thus, applicants respectfully submit that claim 2, and other similar dependent claims, are patentable over the combination of Grimsrud and Smith.

Moreover, the other independent and dependent claims pending herein are patentable for similar reasons as discussed above, as well as for their own additional features.

Based on the foregoing, applicants respectfully request an indication of allowability for all pending claims. Applicants gratefully acknowledge the indication of allowability of claims 13-16, 36-39 and 61-64, if rewritten in independent form. Applicants have not rewritten those claims in independent form at this time, since applicants believe that the claims from which these claims depend are patentable for the reasons above.

Should the Examiner feel that a telephone conference would be beneficial in advancing prosecution of this application, the Examiner is invited to call applicants' representative at the below listed number.

Respectfully submitted,

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